

We claim:

1. A surface coating material for collectors of solar plants, comprising a multi-layer structure comprising a lower metal layer reflecting in the infrared region, an upper antireflection material layer, and an intermediate layer of an amorphous silicon dioxide CERMET having upper and lower layer portions with different metal volumetric fractions, the lower CERMET layer portion having a metal volumetric fraction higher than that of the upper CERMET layer portion.

2. The surface coating of claim 1, wherein the reflecting metal layer has a thickness ranging from 95 to 110nm; the lower CERMET layer has a thickness ranging from 70 to 80nm and a volumetric metal fraction from 0.45 to 0.55; the upper CERMET layer has a thickness ranging from 70 to 80nm and a volumetric metal fraction between 0.15 and 0.25; and the antireflection material layer has a thickness ranging from 65 to 75nm.

3. A coating material according to claim 1 or 2, wherein the lower metal layer is formed of molybdenum; the lower CERMET layer is formed of a ceramic matrix comprising amorphous silicon dioxide in which molybdenum is dispersed at a volumetric fraction lower than that of an adjacent CERMET layer; and the upper antireflection material layer comprises amorphous silicon dioxide.

4. A coating material according to claim 1 or 2, characterized by a working temperature between 300° and 580°C, whereby a maximum temperature of about 550°C is attained for a working fluid.

5. A coating material according to claim 1 or 2 wherein the lower metal layer comprises molybdenum and has a thickness of 100nm; the lower CERMET layer has a thickness of 75nm and comprises a silicon dioxide matrix in which molybdenum is dispersed at a volumetric fraction of 0.5; the upper CERMET layer has a thickness of 75nm and comprises a silicon dioxide (SiO₂) matrix, in which molybdenum is dispersed at a volumetric fraction of 0.2; and the upper antireflection material layer comprises amorphous silicon dioxide and has a thickness of 70nm.

6. A coating material according to claim 1 or 2, characterized in that at a working temperature of 580°C the coating material has an absorptivity $\alpha = 0.93$; an

emissivity ϵ_h ranging from 0.065 to 0.081; and a photo-thermal conversion efficiency ranging from 0.835 to 0.810.

5 7. A coating material according to claim 3, characterized in that at a working temperature of 580°C the coating material has an absorptivity $\alpha = 0.93$; an emissivity ϵ_h ranging from 0.065 to 0.081; and a photo-thermal conversion efficiency ranging from 0.835 to 0.810.

10 8. A coating material according to claim 5, characterized in that at a working temperature of 580°C the coating material has an absorptivity $\alpha = 0.93$; an emissivity ϵ_h ranging from 0.065 to 0.081; and a photo-thermal conversion efficiency ranging from 0.835 to 0.810.